

AMENDED CLAIMS – SUBMITTED EXCLUSIVELY TO
INCREASE THE CLARITY OF THE CLAIMS

037 What is claimed is:

1. A method for maintaining a desired flue parameter level as a byproduct of a multiburner furnace within a predetermined range of sequential values having an upper limit and a lower limit so as to deliver an appropriate oxidant through solenoid valves to a combustant at the burners of a multiburner furnace to increase efficiency and decrease pollution, said method being adapted for use with an Automatic Furnace including an electronic control unit (ECU) having memory, said multiburner furnace having a flue parameter sensor, said oxidant delivery system controlled by said ECU for delivering a selected oxidant dose to a combustant at the burners of a multiburner furnace to maintain the flue parameter in a stable base state within a predetermined range of sequential values having an upper limit and a lower limit to increase efficiency and decrease pollution, a circulation time referred to as circulation time delay and current circulation time between combustion and flue

parameter sensing , a reaction time denoting terminal local maximum or minimum or extreme oxidant delivery at dose serlection, the Automatic Furnace having a plurality of said oxidant and consequential flue parameter doses ranging from the smallest dose to the largest dose, the method also comprising:

delivering said largest oxidant dose to said burners and thereby said largest flue parameter dose as said byproduct to said flue, while repeatedly sequencing through the plurality of sequential said flue parameter doses beginning with the smallest dose and proceeding to an adjacent dose in the sequence after a predetermined time interval has elapsed until said flue parameter levels of said Automatic Furnace attains the desired flue parameter range at which point said oxidant dosage is selected from said plurality of sequential oxidant doses.

delivering said selected oxidant dose so as to maintain said flue parameter level in its desired range.

2. The method of claim 1 wherein CO is said flue parameter.

3. The method of Claim 1 wherein the current circulation time

is determined by:

means for storing a predetermined number of said base state values in memory; and

means for determining a predetermined sequence of said base state levels.

4. The method of claim 1 wherein said reaction time is determined by logic flow charts.

5. The method of Claim 1 wherein temperature is a flue parameter.

6. The method of Claim 1 wherein NO is a flue parameter.

7. The method of Claim 1 wherein compressed gaseous air is said oxidant.

8. The method of Claim 1 wherein compressed oxygen gas is said oxidant.

9. The method of Claim 1 wherein said combustant is solid, liquid, or gas.

10. The method of Claim 1 wherein said combustant is a hydrocarbon.

11. A method for maintaining a desired flue parameter level in a multiburner furnace within a predetermined range of sequential values having an upper limit and a lower limit so as to deliver an appropriate oxidant to a combustant at said burners of a multiburner furnace to increase efficiency and decrease pollution, said method being adapted for use with an Automatic Furnace including an electronic control unit (ECU) having memory, said multiburner furnace, a flue parameter sensor, an oxidant delivery system controlled by said ECU through variably opening solenoid valves for delivering a selected oxidant dose to said combustant at the burners to maintain said flue parameter within a predetermined range of sequential values having an upper limit and a lower limit in a stable base state, a circulation time referred to as a current circulation time or a circulation time delay between combustion and flue parameter sensing, a reaction time denoting said time to select

said oxidant doses, the Automatic Furnace having a plurality of said oxidant and said flue parameter doses ranging from the smallest dose to the largest dose, the method comprising:

delivering said largest oxidant dose to said burner and thereby said largest flue parameter dose as a byproduct to said flue, while repeatedly sequencing through the plurality of oxidant doses beginning with the smallest dose and proceeding to a said adjacent dose in the sequence after a predetermined time interval has elapsed until said flue parameter level of the said Automatic Furnace attains the desired flue parameter range at which point a corresponding said oxidant dosage is selected from said plurality of sequential flue parameter doses.

delivering the selected oxidant and consequential flue parameter doses so as to maintain said flue parameter level in its desired range.

12. The method of claim 11 wherein CO is said flue parameter.

13. The method of Claim 11 wherein said current circulation time is determined by:

means for storing a predetermined number of said base state values in said memory; and

means for determining a predetermined sequence of said base state levels.

14. The method of claim 11 wherein said reaction time is determined by logic flow charts.

15. The method of Claim 11 wherein temperature is said flue parameter.

16. The method of Claim 11 wherein NO is said flue parameter.

17. The method of Claim 11 wherein compressed gaseous air is said oxidant.

18. The method of Claim 11 wherein compressed oxygen gas is said oxidant.

19. The method of Claim 1 wherein the said combustant is solid, liquid, or gas.

20. The method of Claim 1 wherein said combustant is a hydrocarbon.